REMARKS

Applicants have herein amended claims 13 – 15, 19 and 22. Claims 13 – 33 remain pending in this application. At least for the reasons set forth below, Applicants respectfully traverse the foregoing rejections.

As Applicants' remarks with respect to the Examiner's rejections are sufficient to overcome these rejections, Applicants' silence as to assertions by the Examiner in the Office Action or certain requirements that may be applicable to such rejections (e.g., whether a reference constitutes prior art, motivation to combine references, assertions as to dependent claims, etc.) is not a concession by Applicants that such assertions are accurate or such requirements have been met, and Applicants reserve the right to analyze and dispute such assertions/requirements in the future. Further, for any instances in which the Examiner took Official Notice in the Office Action, Applicants expressly do not acquiesce to the taking of Official Notice, and respectfully request that the Examiner provide an affidavit to support the Official Notice taken in the next Office Action, as required by 37 CFR 1.104(d)(2). Applicants respectfully request reconsideration of the present application in view of the above amendments and the following remarks.

Oath/Declaration

The oath or declaration is objected to as being defective for allegedly improperly listing the PCT application under the section for 35 USC 119 priority.

However, in a Notice of Acceptance of Application under 35 U.S.C. 371 and 37 C.F.R. 1.495 dated January 12, 2007, the Office acknowledged that this application has met the requirements under 35 U.S.C. 371 with respect to PCT/EPO3/13928. That PCT application was further identified as a priority document on the application data sheet filed with the present application.

Therefore, the foregoing PCT application is properly listed on the inventors Declaration and the Examiner's objection to the Declaration must be withdrawn.

Claim Rejections – 35 U.S.C. § 102

Claims 13-18 were rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Buchele et al. (U.S. Patent No. 3,108,471) (hereinafter, "Buchele"). Applicants respectfully traverse this rejection.

Applicants believe that recitations of independent claim 13, even prior to the present amendment, are neither disclosed nor suggested by Buchele and the claim is therefore not anticipated.

Independent claim 13, as amended, recites:

> A method of determining the coupling torque in a friction coupling with an electro-mechanical actuator…measuring the pressure in the hydraulic medium; and calculating the coupling torque in an electronic control unit as a function of the measured pressure and a lookup table of values for the actuator and the friction coupling; wherein an axial setting force of the actuator is controlled by the electronic control unit on the basis of the calculated coupling torque.

Buchele does not teach or suggest at least "coupling with an electro-mechanical actuator" or "calculating the coupling torque in an electronic control unit as a function of the measured pressure and a lookup table of values for the actuator and the friction coupling."

Instead, Buchele teaches at most a torque indicator, which is adapted to indicate torque being transmitted from one shaft to another as the shaft is rotated in either direction, which forces a ball to move when torque is applied. This movement of the ball causes a build up of pressure in a hydraulic fluid indicating system which is proportional to the magnitude of the thrust occurring on the ball. *See col. 3, line 69 – col. 4, line 2.* The ball 64, bears against the sides of an opening 66, and transmits a tangential force on a flange 26. The force is thus transmitted from flange 24, to flange 26, in an oblique direction and has both a tangential and an axial component. This axial component applies pressure to a thrust bearing 44 and the hydraulic indicating system. *See col. 4, lines 10 – 20.* Thus, the displacement action of the ball 64, on a straight-sided recess 68, in combination with the constant effective area of recess 32, made possible by the special

configuration of a diaphragm 34, produce a pressure signal which is linearly related to the thrust applied to the torque indicator. *See col. 4 lines 33 – 38.*

Buchele thus discloses determining torque based at most on this linear relationship. Buchele in no way teaches or suggests "a lookup table of values." Because Buchele relies on a linear relationship, Buchele would have no reason to use "a lookup table of values." In fact, Buchele suggests that a lookup table is unnecessary; Buchele's linear relationship of thrust applied to the torque indicator as a result of the displacement of the ball and displacement of a diaphragm by hydraulic fluid teaches away from "calculating the coupling torque in an electronic control unit as a function of the measured pressure and a lookup table of values for the actuator and the friction coupling" as recited in claim 13.

Further, Buchele teaches sealing the diaphragm into the parts, and further discloses that, due to double wrapping the diaphragm, the frictional resistance of the parts is negligible due to a lack of stretching action by the diaphragm as it moves back. *See col. 4, lines 46 – 57.* Thus, Buchele would have had no need for a "friction coupling" and teaches away from using "friction coupling by an electro-mechanical actuator" as recited in claim 13.

Buchele also teaches the use of a recording or controlling mechanism in place of a visual pressure indicator when used in a hydraulic system, such as, an annular piston slidably sealed internally in place of the diaphragm. *See col. 4, lines 39 – 48.* This recording mechanism is merely an alternate means of monitoring the pressure. Buchele does not teach or suggest the use of any electronically controlled actuation system or electronic control unit. Accordingly, Buchele does not teach or suggest "a friction coupling with an electro-mechanical actuator" nor does Buchele teach or suggest "calculating the coupling torque in an electronic control unit as a function of the measured pressure and a lookup table of values for the actuator and the friction coupling; wherein an axial setting force of the actuator is controlled by the electronic control unit on the basis of the calculated coupling torque," as recited in independent claim13.

For at least the foregoing reasons, claim 13 and claims 14 -18, depending therefrom, are allowable over Buchele. Withdrawal of the rejection is respectfully requested.

Claim Rejections – 35 U.S.C. § 103

Claims 19-20, 22-26, and 28-30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Botterill (U.S. Patent No. 5,372,106) (hereinafter, Botterill) in view of Buchele. Applicants respectfully traverse the rejection.

Botterill does not teach or suggest the recitation in claims 19 and 22:

> "wherein the supporting disc is provided in the form of an annular piston in an annular chamber filled with a hydraulic medium; a pressure sensor element arranged in the housing for measuring the hydraulic pressure in the annular chamber; and an electronic control unit for calculating the coupling torque as a function of the measured pressure, wherein an axial setting force of the actuator is controlled by the electronic control unit on the basis of the calculated coupling torque."

In the Office Action, the Examiner admitted that "Botterill does not disclose: wherein the supporting disc is provided in the form of an annular piston in an annular chamber filled with a hydraulic medium; and a pressure sensor element arranged in the housing for measuring the hydraulic pressure in the annular chamber." *Office Action, page 4*. However, after admitting that Botterill does not anticipate claims 19 and 22, the Examiner stated that:

> "Buchele et al. teaches a displaceable disc (20, fig 1) which acts as an annular piston in an annular chamber that compresses a hydraulic medium (recess 32, fig 1), and a pressure sensor (62, fig 1) that measures the pressure in the chamber. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the friction coupling of Botterill with the piston and pressure sensor arrangement of Buchele et al. because Buchele et al. states that this torque monitor is of simple construction and of high sensitivity (column 1, lindes 59 – 60)."

Office Action, page 4. However, the Examiner's indicated motivation, "because Buchele et al. states that this torque monitor is of simple construction and of high sensitivity," is insufficient even to make a prima facie case of obviousness according to the standard as elucidated in KSR v.

Teleflex. (KSR International Co. v. Teleflex, Inc., 127 S.Ct. 1727, 82 USPQ2d 1385 (2007).) In KSR, the Court made clear that "a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." (Id. at 1731, 82 USPQ2d at 1389.)

The Supreme Court in KSR further stated that:

> It can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.

(Id. at 1741, 82 USPQ2d at 1396.) Moreover, "the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit," and the "Federal Circuit has stated that 'rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.'" (See M.P.E.P. 2142.) However, no such reasoning is included in the Examiner's rejection. Under KSR, the Examiner must provide some reason to combine references (id. at 1741, 82 USPQ2d at 1396), which the Examiner has not done here. Here, the Examiner, without providing any evidence or support in the record, has simply made up a proposed benefit (Buchele's torque monitor is of simple construction and of high sensitivity) and has not even explained how that benefit applies to Applicants' claims. When Buchele's torque monitor, no matter how sensitive, can not make calculations or control an actuator. Thus, the Examiner has failed to make a prima facie case of obviousness against claims 19 and 22, and for at least these reasons, the Examiner's rejection of claims 19 and 22 should be withdrawn.

Further, contrary to the Examiner's assertion, Office Action, page 4 Botterill still fails to teach or suggest "an electronic control unit for calculating the coupling torque as a function of the measured pressure, wherein an axial setting force of the actuator is controlled by the electronic control unit on the basis of the calculated coupling torque." Botterill discloses at most a control system that "is switched in a noise- and impact-free way by using an adapted electronic control

system of the actuating electric motor so that comfort is not disadvantageously affected." *Botterill, col. 3, lines 23 – 27; emphasis added.* Thus, Botteril neither teaches nor suggests measuring the friction coupling moment with an electro-mechanical actuator or utilizing an electronic control unit for calculating the coupling torque and controlling an axial setting force of the actuator. Therefore, claims 19 and 22 are patentable over Botterill at least because claims 19 and 22 recite "an electronic control unit for calculating the coupling torque as a function of the measured pressure, wherein an axial setting force of the actuator is controlled by the electronic control unit on the basis of the calculated coupling torque." (Emphasis added.)

Further, Buchele, as discussed above, fails to teach or suggest "an electronic control unit for calculating the coupling torque," as recited by Applicants' independent claims 19 and 22.

Therefore, the Section 103 rejection of claims 19 and 22, and all claims depening therefrom, must be withdrawn for this further reason.

Accordingly, for at least the forgoing reasons, independent claims 19 and 22 and claims 20, 23 – 26 and 28 – 30, depending therefrom, are allowable. Withdrawal of the rejection is respectfully requested.

Claims 21, 27, and 31-33 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Botterill in view of Buchele as applied to claims 19 and 22 above, and further in view of Beccaris et al. (U.S. Patent No. 4,903,804) (hereinafter, Beccaris) and Oppermann (U.S. Patent No. 4,703,663) (hereinafter, Oppermann).

At a minimum, the Examiner has not provided sufficient reason why one would have combined Botterill, Buchele, Beccaris and Oppermann. In the Office Action, the Examiner stated that:

> Beccaris et al. teaches a force sensor with a strain gauge (60, fig 1) to be compressed in a chamber. Opperman teaches that it was well known in the art at the time of the invention that force sensors using strain gauges necessarily included an elastic element (column 1, lines 20-21). This feature would necessarily be included when the force sensor of Beccaris et al. is combined with the pressure sensing assembly of Botterill as modified by Buchele et al., as discussed above.

Office Action, page 7. However, the Examiner has cited no reference, and provided no explanation, at to why it would have been desirable to include the "force sensor with a strain gauge." Moreover, the Examiner has pointed to no teaching or suggestion that a force sensor with a strain gauge would be utilized by and electronic control unit to determine the coupling moment and control the moment with a n electro-mechanical actuator.

In addition, even if the Examiner had provided a reason to have combined Botterill, Buchele, Beccaris and Oppermann, the Examiner has not provided any evidence that these references could have been combined. As stated above, Botterill, at most, discloses a control system that "[T]he assembly in accordance with the invention is switched in a noise- and impact-free way by suing an adapted electronic control system of the actuating electric motor so that comfort is not disadvantageously affected." *Botterill, col. 3, lines 23 – 27; emphasis added.* Thus, Botteril neither teaches nor suggests measuring the friction coupling moment with an electro-mechanical actuator or utilizing an electronic control unit for calculating the coupling torque and controlling an axial setting force of the actuator. Buchele, at most, discloses a hydraulic torque monitor system utilizing a change in pressure. Neither Botterill nor Buchele require an electronic control unit for calculating the coupling torque as a function of the measured pressure, wherein an axial setting force of the actuator is controlled by the electronic control unit on the basis of the calculated coupling torque, as claimed by Applicants' independent claims 19 and 22.

Further, the failure of Buchele and Botterill can not be made up by either Beccaris or Oppermann as neither teach or suggest "an electronic control unit for calculating the coupling torque as a function of the measured pressure, wherein an axial setting force of the actuator is controlled by the electronic control unit on the basis of the calculated coupling torque," as claimed by Applicants' independent claims 19 and 22.

Beccaris and Opperman do not make up for the failures of Buchele and Botterill as they also do not teach or suggest "an electronic control unit for calculating the coupling torque as a function of the measured pressure, wherein an axial setting force of the actuator is controlled by the electronic control unit on the basis of the calculated coupling torque," as claimed by Applicants' independent claims 19 and 22.

Instead, Beccaris discloses, at most, a torque limiter mounted within its own housing and a detector for detecting longitudinal forces exerted by the torque limiter. The detector is connected with a monitoring unit for monitoring the control pressure exerted by the control mechanism of the clutch on the pressure plate. *See Beccaris, Abstract.* Thus, Beccaris merely monitors pressure and does not create any calculations nor does Beccaris adjust an actuator based on those calculations.

Further, Opermann merely discloses a force sensor for electrically measuring forces and converting those forces into a mechanical normal stress field and then into an electric resistance change. As stated above, Beccaris' monitoring unit and Opperman's force sensor neither teach nor suggest a control unit used to "an electronic control unit for calculating the coupling torque as a function of the measured pressure, wherein an axial setting force of the actuator is controlled by the electronic control unit on the basis of the calculated coupling torque," as claimed by Applicants' independent claims 19 and 22.

Accordingly, for at least this reason, dependent claims 21, 27, and 31 – 33, depend from allowable subject matter of claims 19 and 22 and are therefore patentable over the cited references. Withdrawal of the rejection is respectfully requested.

Conclusion

In view of the above amendment and remarks, the pending application is in condition for allowance. If, however, there are any outstanding issues that can be resolved by telephone conference, the Examiner is earnestly encouraged to telephone the undersigned representative.

It is believed no fees are due with this response. However, if any fees are required in connection with the filing of this paper that are not identified in any accompanying transmittal, permission is given to charge our Deposit Account No. 18-0013, under Order No. 66968-0014 from which the undersigned is authorized to draw. To the extent necessary, a petition for extension of time under 37 C.F.R. §1.136 is hereby made, the fee for which should also be charged to this Deposit Account.

Dated: August 20, 2009

Respectfully submitted,

Electronic signature: /Charles A. Bieneman/
Charles A. Bieneman
Registration No.: 51,472
RADER, FISHMAN & GRAUER PLLC
Correspondence Customer Number: 84362
Attorney for Applicant